

ABSTRACT OF THE DISCLOSURE

A plasma etching method includes forming a polymer comprising carbon and a halogen over at least some internal surfaces of a plasma etch chamber. After forming the polymer, plasma etching is conducted using a gas which is effective to etch polymer from chamber internal surfaces. In one implementation, the gas has a hydrogen component effective to form a gaseous hydrogen halide from halogen liberated from the polymer. In one implementation, the gas comprises a carbon component effective to getter the halogen from the etched polymer. In another implementation, a plasma etching method includes positioning a semiconductor wafer on a wafer receiver within a plasma etch chamber. First plasma etching of material on the semiconductor wafer occurs with a gas comprising carbon and a halogen. A polymer comprising carbon and the halogen forms over at least some internal surfaces of the plasma etch chamber during the first plasma etching. After the first plasma etching and with the wafer on the wafer receiver, second plasma etching is conducted using a gas effective to etch polymer from chamber internal surfaces and getter halogen liberated from the polymer to restrict further etching of the material on the semiconductor wafer during the second plasma etching. The first and second plasma etchings are ideally conducted at subatmospheric pressure with the wafer remaining *in situ* on the receiver intermediate the first and second etchings, and with the chamber maintained at some subatmospheric pressure at all time intermediate the first and second plasma etchings.